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(54) **COMPUTED TOMOGRAPHY BREAST IMAGING AND BIOPSY SYSTEM**

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CPC ***A61B 6/502*** (2013.01); ***A61B 6/032*** (2013.01); ***A61B 6/0435*** (2013.01);
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CPC A61B 6/032; A61B 6/0435; A61B 6/06; A61B 6/4085; A61B 6/466; A61B 6/502; A61B 6/04
See application file for complete search history.

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(57) **ABSTRACT**

A prone CT breast x-ray imaging system is described that can image a full breast to create a conventional two-dimensional digital image in very high resolution (e.g., ≤25 micron pixels). The system is capable of imaging the entire breast in three-dimensional based on multiple projection views from a one-dimensional or two-dimensional detector. Data can be acquired and reconstructed with a limited number of views from limited angles or with conventional cone beam CT algorithms. The resulting three-dimensional image enables the detection and diagnosis of fine micro calcifications and small masses as may be distributed throughout the breast, thus allowing radiologists to make an improved determination of malignancy as opposed to conventional two-dimensional digital mammography. In addition, the injection of intravenous contrast in conjunction with or without pre and post contrast subtraction imaging provides a radiologist with morphologic information on the existing tumor burden in the breast. This capability may obviate the need for an independent contrast MRI exam of the breast which is increasingly performed for local staging and determination of tumor extent in a patient with a known cancer. Integrated biopsy capability permits convenient and rapid biopsy of any area suspicious for malignancy.

17 Claims, 11 Drawing Sheets